OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION *US/09/083,793*

INPUT SET: S26299.raw

This Raw Listing contains the General Information Section and up to the first 5 pages.

```
1                               SEQUENCE LISTING
2
3    (1)     General Information:                    ENTERED
4
5      (i) APPLICANT:  Murphy, Brian R.
6                      Collins, Peter L.
7                      Durbin, Anna P.
8                      Skiadopoulos, Mario H.
9                      Tao, Tao
10
11    (ii) TITLE OF INVENTION: PRODUCTION OF ATTENUATED PARAINFLUENZA
12              VIRUS VACCINES FROM CLONED NUCLEOTIDE SEQUENCE
13
14   (iii) NUMBER OF SEQUENCES: 74
15
16    (iv) CORRESPONDENCE ADDRESS:
17          (A)   ADDRESSEE:  TOWNSEND and TOWNSEND and CREW LLP
18          (B)   STREET:  Two Embarcadero Center, 8th Floor
19          (C)   CITY:  San Francisco
20          (D)   STATE:  California
21          (E)   COUNTRY:  USA
22          (F)   ZIP:  94111
23
24     (v) COMPUTER READABLE FORM:
25          (A) MEDIUM TYPE: Floppy disk
26          (B) COMPUTER: IBM PC compatible
27          (C) OPERATING SYSTEM: PC-DOS/MS-DOS
28          (D) SOFTWARE: PatentIn Release #1.0, Version #1.25
29
30    (vi) CURRENT APPLICATION DATA:
31          (A) APPLICATION NUMBER: 09/
32          (B) FILING DATE: 22-MAY-1998
33          (C) CLASSIFICATION:
34
35   (vii) PRIOR APPLICATION DATA:
36          (A) APPLICATION NUMBER: US 60/059,385
37          (B) FILING DATE: 19-SEP-1997
38
39   (vii) PRIOR APPLICATION DATA:
40          (A) APPLICATION NUMBER: US 60/047,575
41          (B) FILING DATE: 23-MAY-1997
42
43  (viii) ATTORNEY/AGENT INFORMATION:
44          (A) NAME: King, Jeffrey J.
45          (B) REGISTRATION NUMBER: 38,515
46          (C) REFERENCE/DOCKET NUMBER: 17634-000320
```

INPUT SET: S26299.raw

```
47
48        (ix) TELECOMMUNICATION INFORMATION:
49             (A) TELEPHONE: 206-467-9600
50             (B) TELEFAX: 415-576-0300
51
52
53   (2) INFORMATION FOR SEQ ID NO:1:
54
55        (i) SEQUENCE CHARACTERISTICS:
56             (A) LENGTH: 15669 base pairs
57             (B) TYPE: nucleic acid
58             (C) STRANDEDNESS: single
59             (D) TOPOLOGY: linear
60
61       (ii) MOLECULE TYPE: cDNA
62
63
64
65       (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:
66
67   GCTGGGTACC GGGCCCGTCG ACGCGTATAT AGTTCCTCCT TTCAGCAAAA AACCCCTCAA      60
68
69   GACCCGTTTA GAGGCCCCAA GGGGTTATGC TACTGCAGGC TCTCCCTTAG CCATCCGAGT     120
70
71   GGACGTGCGT CCTCCTTCGG ATGCCCAGGT CGGACCGCGA GGAGGTGGAG ATGCCATGCC     180
72
73   GACCCACCAA ACAAGAGAAG AAACTTGTCT GGGAATATAA ATTTAACTTT AAATTAACTT     240
74
75   AGGATTAAAG ACATTGACTA GAAGGTCAAG AAAAGGGAAC TCTATAATTT CAAAAATGTT     300
76
77   GAGCCTATTT GATACATTTA ATGCACGTAG GCAAGAAAAC ATAACAAAAT CAGCCGGTGG     360
78
79   AGCTATCATT CCTGGACAGA AAATACTGT CTCTATATTC GCCCTTGGAC CGACAATAAC     420
80
81   TGATGATAAT GAGAAAATGA CATTAGCTCT TCTATTTCTA TCTCATTCAC TAGATAATGA     480
82
83   GAAACAACAT GCACAAAGGG CAGGGTTCTT GGTGTCTTTA TTGTCAATGG CTTATGCCAA     540
84
85   TCCAGAGCTC TACCTAACAA CAAATGGAAG TAATGCAGAT GTCAAGTATG TCATATACAT     600
86
87   GATTGAGAAA GATCTAAAAC GGCAAAAGTA TGGAGGATTT GTGGTTAAGA CGAGAGAGAT     660
88
89   GATATATGAA AAGACAACTG ATTGGATATT TGGAAGTGAC CTGGATTATG ATCAGGAAAC     720
90
91   TATGTTGCAG AACGGCAGGA ACAATTCAAC AATTGAAGAC CTTGTCCACA CATTTGGGTA     780
92
93   TCCATCATGT TTAGGAGCTC TTATAATACA GATCTGGATA GTTCTGGTCA AAGCTATCAC     840
94
95   TAGTATCTCA GGGTTAAGAA AAGGCTTTTT CACCCGATTG GAAGCTTTCA GACAAGATGG     900
96
97   AACAGTGCAG GCAGGGCTGG TATTGAGCGG TGACACAGTG GATCAGATTG GGTCAATCAT     960
98
99   GCGGTCTCAA CAGAGCTTGG TAACTCTTAT GGTTGAAACA TTAATAACAA TGAATACCAG    1020
```

INPUT SET: S26299.raw

```
100
101    CAGAAATGAC CTCACAACCA TAGAAAAGAA TATACAAATT GTTGGCAACT ACATAAGAGA    1080
102
103    TGCAGGTCTC GCTTCATTCT TCAATACAAT CAGATATGGA ATTGAGACCA GAATGGCAGC    1140
104
105    TTTGACTCTA TCCACTCTCA GACCAGATAT CAATAGATTA AAAGCTTTGA TGGAACTGTA    1200
106
107    TTTATCAAAG GGACCACGCG CTCCTTTCAT CTGTATCCTC AGAGATCCTA TACATGGTGA    1260
108
109    GTTCGCACCA GGCAACTATC CTGCCATATG GAGCTATGCA ATGGGGGTGG CAGTTGTACA    1320
110
111    AAATAGAGCC ATGCAACAGT ATGTGACGGG AAGATCATAT CTAGACATTG ATATGTTCCA    1380
112
113    GCTAGGACAA GCAGTAGCAC GTGATGCCGA AGCTCAAATG AGCTCAACAC TGGAAGATGA    1440
114
115    ACTTGGAGTG ACACACGAAT CTAAAGAAAG CTTGAAGAGA CATATAAGGA ACATAAACAG    1500
116
117    TTCAGAGACA TCTTTCCACA AACCGACAGG TGGATCAGCC ATAGAGATGG CAATAGATGA    1560
118
119    AGAGCCAGAA CAATTCGAAC ATAGAGCAGA TCAAGAACAA AATGGAGAAC CTCAATCATC    1620
120
121    CATAATTCAA TATGCCTGGG CAGAAGGAAA TAGAAGCGAT GATCAGACTG AGCAAGCTAC    1680
122
123    AGAATCTGAC AATATCAAGA CCGAACAACA AAACATCAGA GACAGACTAA ACAAGAGACT    1740
124
125    CAACGACAAG AAGAAACAAA GCAGTCAACC ACCCACTAAT CCCACAAACA GAACAAACCA    1800
126
127    GGACGAAATA GATGATCTGT TTAACGCATT TGGAAGCAAC TAATCGAATC AACATTTTAA    1860
128
129    TCTAAATCAA TAATAAATAA GAAAAACTTA GGATTAAAGA ATCCTATCAT ACCGGAATAT    1920
130
131    AGGGTGGTAA ATTTAGAGTC TGCTTGAAAC TCAATCAATA GAGAGTTGAT GGAAAGCGAT    1980
132
133    GCTAAAAACT ATCAAATCAT GGATTCTTGG GAAGAGGAAT CAAGAGATAA ATCAACTAAT    2040
134
135    ATCTCCTCGG CCCTCAACAT CATTGAATTC ATACTCAGCA CCGACCCCCA AGAAGACTTA    2100
136
137    TCGGAAAACG ACACAATCAA CACAAGAACC CAGCAACTCA GTGCCACCAT CTGTCAACCA    2160
138
139    GAAATCAAAC CAACAGAAAC AAGTGAGAAA GATAGTGGAT CAACTGACAA AAATAGACAG    2220
140
141    TCTGGGTCAT CACACGAATG TACAACAGAA GCAAAGATA GAAATATTGA TCAGGAAACT    2280
142
143    GTACAGAGAG GACCTGGGAG AAGAAGCAGC TCAGATAGTA GAGCTGAGAC TGTGGTCTCT    2340
144
145    GGAGGAATCC CCAGAAGCAT CACAGATTCT AAAAATGGAA CCCAAAACAC GGAGGATATT    2400
146
147    GATCTCAATG AAATTAGAAA GATGGATAAG GACTCTATTG AGGGGAAAAT GCGACAATCT    2460
148
149    GCAAATGTTC CAAGCGAGAT ATCAGGAAGT GATGACATAT TTACAACAGA ACAAAGTAGA    2520
150
151    AACAGTGATC ATGGAAGAAG CCTGGAATCT ATCAGTACAC CTGATACAAG ATCAATAAGT    2580
152
```

INPUT SET: S26299.raw

153	GTTGTTACTG	CTGCAACACC	AGATGATGAA	GAAGAAATAC	TAATGAAAAA	TAGTAGGACA	2640
154							
155	AAGAAAAGTT	CTTCAACACA	TCAAGAAGAT	GACAAAGAA	TTAAAAAAGG	GGGAAAAGGG	2700
156							
157	AAAGACTGGT	TTAAGAAATC	AAAAGATACC	GACAACCAGA	TACCAACATC	AGACTACAGA	2760
158							
159	TCCACATCAA	AAGGGCAGAA	GAAAATCTCA	AAGACAACAA	CCACCAACAC	CGACACAAAG	2820
160							
161	GGGCAAACAG	AAATACAGAC	AGAATCATCA	GAAACACAAT	CCTCATCATG	GAATCTCATC	2880
162							
163	ATCGACAACA	ACACCGACCG	GAACGAACAG	ACAAGCACAA	CTCCTCCAAC	AACAACTTCC	2940
164							
165	AGATCAACTT	ATACAAAAGA	ATCGATCCGA	ACAAACTCTG	AATCCAAACC	CAAGACACAA	3000
166							
167	AAGACAAATG	GAAAGGAAAG	GAAGGATACA	GAAGAGAGCA	ATCGATTTAC	AGAGAGGGCA	3060
168							
169	ATTACTCTAT	TGCAGAATCT	TGGTGTAATT	CAATCCACAT	CAAAACTAGA	TTTATATCAA	3120
170							
171	GACAAACGAG	TTGTATGTGT	AGCAAATGTA	CTAAACAATG	TAGATACTGC	ATCAAAGATA	3180
172							
173	GATTTCCTGG	CAGGATTAGT	CATAGGGGTT	TCAATGGACA	ACGACACAAA	ATTAACACAG	3240
174							
175	ATACAAAATG	AAATGCTAAA	CCTCAAAGCA	GATCTAAAGA	AAATGGACGA	ATCACATAGA	3300
176							
177	AGATTGATAG	AAAATCAAAG	AGAACAACTG	TCATTGATCA	CGTCACTAAT	TTCAAATCTC	3360
178							
179	AAAATTATGA	CTGAGAGAGG	AGGAAAGAAA	GACCAAAATG	AATCCAATGA	GAGAGTATCC	3420
180							
181	ATGATCAAAA	CAAAATTGAA	AGAAGAAAAG	ATCAAGAAGA	CCAGGTTTGA	CCCACTTATG	3480
182							
183	GAGGCACAAG	GCATTGACAA	GAATATACCC	GATCTATATC	GACATGCAGG	AGATACACTA	3540
184							
185	GAGAACGATG	TACAAGTTAA	ATCAGAGATA	TTAAGTTCAT	ACAATGAGTC	AAATGCAACA	3600
186							
187	AGACTAATAC	CCAAAAAAGT	GAGCAGTACA	ATGAGATCAC	TAGTTGCAGT	CATCAACAAC	3660
188							
189	AGCAATCTCT	CACAAAGCAC	AAAACAATCA	TACATAAACG	AACTCAAACG	TTGCAAAAAT	3720
190							
191	GATGAAGAAG	TATCTGAATT	AATGGACATG	TTCAATGAAG	ATGTCAACAA	TTGCCAATGA	3780
192							
193	TCCAACAAAG	AAACGACACC	GAACAAACAG	ACAAGAAACA	ACAGTAGATC	AAAACCTGTC	3840
194							
195	AACACACACA	AAATCAAGCA	GAATGAAACA	ACAGATATCA	ATCAATATAC	AAATAAGAAA	3900
196							
197	AACTTAGGAT	TAAAGAATAA	ATTAATCCTT	GTCCAAAATG	AGTATAACTA	ACTCTGCAAT	3960
198							
199	ATACACATTC	CCAGAATCAT	CATTCTCTGA	AAATGGTCAT	ATAGAACCAT	TACCACTCAA	4020
200							
201	AGTCAATGAA	CAGAGGAAAG	CAGTACCCCA	CATTAGAGTT	GCCAAGATCG	GAAATCCACC	4080
202							
203	AAAACACGGA	TCCCGGTATT	TAGATGTCTT	CTTACTCGGC	TTCTTCGAGA	TGGAACGAAT	4140
204							
205	CAAAGACAAA	TACGGGAGTG	TGAATGATCT	CGACAGTGAC	CCGAGTTACA	AAGTTTGTGG	4200

INPUT SET: S26299.raw

206
207   CTCTGGATCA TTACCAATCG GATTGGCTAA GTACACTGGG AATGACCAGG AATTGTTACA   4260'
208
209   AGCCGCAACC AAACTGGATA TAGAAGTGAG AAGAACAGTC AAAGCGAAAG AGATGGTTGT   4320
210
211   TTACACGGTA CAAAATATAA AACCAGAACT GTACCCATGG TCCAATAGAC TAAGAAAAGG   4380
212
213   AATGCTGTTC GATGCCAACA AAGTTGCTCT TGCTCCTCAA TGTCTTCCAC TAGATAGGAG   4440
214
215   CATAAAATTT AGAGTAATCT TCGTGAATTG TACGGCAATT GGATCAATAA CCTTGTTCAA   4500
216
217   AATTCCTAAG TCAATGGCAT CACTATCTCT ACCCAACACA ATATCAATCA ATCTGCAGGT   4560
218
219   ACACATAAAA ACAGGGGTTC AGACTGATTC TAAAGGGATA GTTCAAATTT TGGATGAGAA   4620
220
221   AGGCGAAAAA TCACTGAATT TCATGGTCCA TCTCGGATTG ATCAAAAGAA AAGTAGGCAG   4680
222
223   AATGTACTCT GTTGAATACT GTAAACAGAA AATCGAGAAA ATGAGATTGA TATTTCTTT   4740
224
225   AGGACTAGTT GGAGGAATCA GTCTTCATGT CAATGCAACT GGGTCCATAT CAAAAACACT   4800
226
227   AGCAAGTCAG CTGGTATTCA AAAGAGAGAT TTGTTATCCT TTAATGGATC TAAATCCGCA   4860
228
229   TCTCAATCTA GTTATCTGGG CTTCATCAGT AGAGATTACA AGAGTGGATG CAATTTTCCA   4920
230
231   ACCTTCTTTA CCTGGCGAGT TCAGATACTA TCCTAATATT ATTGCAAAAG GAGTTGGGAA   4980
232
233   AATCAAACAA TGGAACTAGT AATCTCTATT TTAGTCCGGA CGTATCTATT AAGCCGAAGC   5040
234
235   AAATAAAGGA TAATCAAAAA CTTAGGACAA AAGAGGTCAA TACCAACAAC TATTAGCAGT   5100
236
237   CACACTCGCA AGAATAAGAG AGAAGGGACC AAAAAAGTCA AATAGGAGAA ATCAAAACAA   5160
238
239   AAGGTACAGA ACACCAGAAC AACAAAATCA AAACATCCAA CTCACTCAAA ACAAAAATTC   5220
240
241   CAAAAGAGAC CGGCAACACA ACAAGCACTG AACACAATGC CAACTTCAAT ACTGCTAATT   5280
242
243   ATTACAACCA TGATCATGGC ATCTTTCTGC CAAATAGATA TCACAAAACT ACAGCACGTA   5340
244
245   GGTGTATTGG TCAACAGTCC CAAAGGGATG AAGATATCAC AAAACTTTGA AACAAGATAT   5400
246
247   CTAATTTTGA GCCTCATACC AAAAATAGAA GACTCTAACT CTTGTGGTGA CCAACAGATC   5460
248
249   AAGCAATACA AGAAGTTATT GGATAGACTG ATCATCCCTT TATATGATGG ATTAAGATTA   5520
250
251   CAGAAAGATG TGATAGTAAC CAATCAAGAA TCCAATGAAA ACACTGATCC CAGAACAAAA   5580
252
253   CGATTCTTTG GAGGGGTAAT TGGAACCATT GCTCTGGGAG TAGCAACCTC AGCACAAATT   5640
254
255   ACAGCGGCAG TTGCTCTGGT TGAAGCCAAG CAGGCAAGAT CAGACATCGA AAAACTCAAA   5700
256
257   GAAGCAATTA GGGACACAAA CAAAGCAGTG CAGTCAGTTC AGAGCTCCAT AGGAAATTTA   5760
258

SEQUENCE VERIFICATION REPORT
PATENT APPLICATION *US/09/083,793*

INPUT SET: S26299.raw

Line	Error	Original Text
31	Wrong application Serial Number	(A) APPLICATION NUMBER: 09/